OMB Number: 4040-0004
Expiration Date: 8/31/2016

Application for Federal Assistance SF-424

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received: Completed by Grants gov upon submission.

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: Maryland Environmental Service

* b. Employer/Taxpayer Identification Number (EIN/TIN): 52-0982511

* c. Organizational DUNS: 0774067260000

d. Address:

* Street1: 259 Najoles Road
Street2:
* City: Millersville
County/Parish:
* State: MD: Maryland
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 21108-0000

e. Organizational Unit:

Department Name: Technical & Environmental Svcs

Division Name: Environ Dredging & Restoration

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr.
* First Name: Theodore
Middle Name:
* Last Name: Kluga
Suffix:

Title: Grants Administrator/Agency Energy Coordinato

Organizational Affiliation: Maryland Environmental Service

* Telephone Number: 410-729-8206
Fax Number: 410-729-8280

* Email: tkluga@menv.com

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.039

CFDA Title:

National Clean Diesel Emissions Reduction Program

*** 12. Funding Opportunity Number:**

EPA-OAR-OTAQ-16-02

* Title:

Clean Diesel Funding Assistance Program FY 2016

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Retrofitting 5 switcher locomotives with auto start/stop technologies and replacing or repowering a mix of cargo handling equipment serving the Port of Baltimore.

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: 4 * b. Program/Project: 2,3,7

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 10/01/2016 * b. End Date: 12/31/2018

18. Estimated Funding ($):

* a. Federal	778,400.00
* b. Applicant	0.00
* c. State	0.00
* d. Local	0.00
* e. Other	1,860,000.00
* f. Program Income	0.00
* g. TOTAL	2,638,400.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☒ a. This application was made available to the State under the Executive Order 12372 Process for review on 04/27/2016

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☐ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix:	Mr.
* First Name:	Theodore
Middle Name:	
* Last Name:	Kluga
Suffix:	
* Title:	Grants Administrator/Agency Energy Coordinato
* Telephone Number:	410-729-8206
Fax Number:	410-729-8280
* Email:	tklug@menv.com
* Signature of Authorized Representative:	Completed by Grants.gov upon submission
* Date Signed:	Completed by Grants.gov upon submission

Original Signed 4/26/16
Via Grants.Gov (See following Page

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: 4

* b. Program/Project: 2,3,7

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 10/01/2016

* b. End Date: 12/31/2018

18. Estimated Funding ($):

* a. Federal	1,279,978.00
* b. Applicant	0.00
* c. State	0.00
* d. Local	0.00
* e. Other	3,150,000.00
* f. Program Income	0.00
* g. TOTAL	4,429,978.00

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☒ a. This application was made available to the State under the Executive Order 12372 Process for review on 04/27/2016.

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☐ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: Mr. * First Name: Theodore

Middle Name:

* Last Name: Kluga

Suffix:

* Title: Grants Administrator/Agency Energy Coordinato

* Telephone Number: 410-729-8206 Fax Number: 410-729-8280

* Email: tklug@menv.com

* Signature of Authorized Representative: Theodore Kluga * Date Signed: 04/26/2016

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 01/31/2019

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. National Clean Diesel Emissions Reduction Program	66.039	$	$	$ 778,400.00	$ 1,860,000.00	$ 2,638,400.00
2.						
3.						
4.						
5. Totals		$	$	$ 778,400.00	$ 1,860,000.00	$ 2,638,400.00

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
	National Clean Diesel Emissions Reduction Program				
a. Personnel	$ 17,832.00	$ 0.00	$	$	$ 17,832.00
b. Fringe Benefits	10,107.00	0.00			10,107.00
c. Travel					
d. Equipment					
e. Supplies	500.00	0.00			500.00
f. Contractual	71,614.00	0.00			71,614.00
g. Construction					
h. Other	668,760.00	1,860,000.00			2,528,760.00
i. Total Direct Charges (sum of 6a-6h)	768,813.00	1,860,000.00			$ 2,628,813.00
j. Indirect Charges	9,587.00	0.00			$ 9,587.00
k. TOTALS (sum of 6i and 6j)	$ 778,400.00	$ 1,860,000.00	$	$	$ 2,638,400.00
7. Program Income	$	$	$	$	$

SECTION C - NON-FEDERAL RESOURCES

	(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8.	National Clean Diesel Emissions Reduction Program	$	$	$ 1,860,000.00	$ 1,860,000.00
9.					
10.					
11.					
12. TOTAL (sum of lines 8-11)		$	$	$ 1,860,000.00	$ 1,860,000.00

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 389,200.00	$ 97,300.00	$ 97,300.00	$ 97,300.00	$ 97,300.00
14. Non-Federal	$ 930,000.00	232,500.00	232,500.00	232,500.00	232,500.00
15. TOTAL (sum of lines 13 and 14)	$ 1,319,200.00	$ 329,800.00	$ 329,800.00	$ 329,800.00	$ 329,800.00

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

	(a) Grant Program	FUTURE FUNDING PERIODS (YEARS) (b)First	(c) Second	(d) Third	(e) Fourth
16.	National Clean Diesel Emissions Reduction Program	$ 389,200.00	$	$	$
17.					
18.					
19.					
20. TOTAL (sum of lines 16 - 19)		$ 389,200.00	$	$	$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:

22. Indirect Charges: $9,587

23. Remarks:

ENVIRONMENTAL PROTECTION AGENCY (EPA) - EPA Region 3
Clean Diesel Funding Assistance Program FY 2016
Request for Proposals (RFP)

EPA-OAR-OTAQ-16-02
CATALOG OF FINANCIAL DOMESTIC ASSISTANCE NUMBER: 66.039

Project Title
CARGO (Clean Air Recognition Grants & Opportunities)

Applicant Information

Maryland Environmental Service on behalf of the Maryland Port Administration
259 Najoles Road
Millersville, MD 21108

Office Phone: 410.729.8206
Office Fax: 410.729.8280
Contact Name: Theodore Kluga, Grants Administrator/Agency Energy Coordinator
E-mail: tklug@menv.com
Website: www.menv.com
DUNS Number: 077406726
Eligible Entity: Maryland State Government

Eligibility:

The Maryland Environmental Service (MES) is a self-supporting, independent State agency, which provides environmental services to the Maryland Port Administration (MPA). MES provides services to the MPA and other government clients, including projects for air quality, transportation, water and wastewater treatment, solid waste management, composting, recycling, dredged material management, hazardous materials cleanup, storm water services and renewable energy.

MES is submitting this proposal on behalf of the Maryland Port Administration. As the public administration in Maryland formed to manage public marine terminals, navigational channels related to shipping, and transportation infrastructure for the marine terminals, MPA plays a significant role in setting air quality goals at its marine terminals.

Total Project Cost:

$ 778,400 Funding Requested from EPA
$ 1,860,000 Mandatory Match
$ 0 Voluntary Cost-Share
$ 2,638,400 Total

Target Fleet:

Ports
Switcher Locomotives – 5
Cargo Handling Equipment – Up to 20

Technology:

Switcher Locomotives – auto start stop idle reduction
Cargo Handling Equipment – replacement and repower

Project Location:

Port of Baltimore facilities and transportation corridors located in the Baltimore non-attainment area including Baltimore City, and the Maryland counties of Baltimore, Howard, Anne Arundel, Carroll, and Harford.

Project Period:

October 1, 2016 – December 31, 2018

Project Description:

By retrofitting 5 switcher locomotives with auto start/stop technologies and replacing or repowering a mix of cargo handling equipment this project will improve regional air quality by reducing NOx and PM emissions and help meet statewide greenhouse gas reduction goals by curtailing CO_2 emissions.

Section 1. Project Summary and Overall Approach

Program Overview

Locomotive Switcher
This project will retrofit older switcher locomotives with auto start/stop technology.

Cargo Handling Equipment (CHE) Repower and Replace Program
The Maryland Port Administration has had a successful drayage truck replacement program in place since 2009. The proposed Cargo Handling Equipment Repower and Replacement Program will build from the dray truck program model to address Cargo Handling Equipment since it represents 73 percent of the on yard emissions from the Port. This new program has identified over 90 pieces of equipment from five companies that are willing to repower or replace a host of equipment.

The federal request of $778,400 in this proposal will not replace all of the equipment. Rather the numbers demonstrate interest in the program. The equipment lists used for the proposal are a sample of the equipment identified by the five companies listed in Table 1 on page 3. Results of MPA's CHE Emissions Inventory guided the decision to develop a CHE modernization program. The study showed significant overall reductions in total emissions and in average emission rates since 2006, while total activity decreased by 8%. Factors contributing to decreases in emissions included modernization of CHE fleets (average MY increased from MY 1998 in 2006 to MY 2003 in 2012). This grant program proposes to continue using mechanisms developed under the Dray Truck Replacement Programs to receive and review applications, issue certificates, replace/repower and scrap equipment and reimburse certificates. Below is an overview of the planned structure.

Application and review: Applicants will submit detailed information about their current equipment, operating characteristics and area of operations. The application is reviewed to assure all information is complete and that the equipment meets program requirements for engine model year, area of operation that the vehicle is currently in operation, etc. Applications with the highest emission reductions will be given priority.

Certificate issued: Once the applicants are accepted into the program they are issued a rebate certificate. This certificate shows program vendors that this applicant has been accepted into the program and that funds have been reserved for their replacement/repower project. They are free to choose equipment of their choice as long as it meets EPA Tier 4 standards and has a 2015 or newer engine or is all electric. The program will fund up to 25% for diesel and 45% for all electric replacements or 40% for diesel and 60% for all electric repowers.

Scrappage of old equipment: Please see Section 1. A. 8 on pages 3-4 for details about scrappage.

Request for payment: In order to receive the funds from the certificate the owner must provide proof of purchase of the equipment and document scrappage of the old equipment. Program participants will receive decals to display on the repowered or new equipment.

Since MES will build on an existing model, minimal revisions and changes will be made to existing program procedure. This enables federal funds to be used in a more efficient manner and further reduce emissions from CHE.

A. VEHICLES AND TECHNOLOGIES
For detailed fleet information please see Appendix A: Applicant Fleet Description.

1. Eligibility

Switcher Locomotives – The Locomotives are tier 0 engines and are eligible to be retrofitted with auto start/stop technologies. The locomotives also meet the 1000+ hour use requirement.

Cargo Handling Equipment – The cargo handling equipment identified in Table 1 exceeds the annual usage rate of 500 hours and meets the horse power and useful life requirements as specified in the RFP. Generally this means the equipment is newer than 2004 (0-50HP); 1994 (51-300HP); and 1984 (301+ HP). Additional CHE will meet the same HP, use, and age requirements. Twenty (20) units of CHE identified in Table 1 will be repowered/replaced.

2. Number, Types, Ownership, Equipment

Table 1: Proposed Diesel Equipment Modifications

Equipment Type	Owner	Replace	Repower	Retrofit	Total
Switcher Locomotive	Canton Railroad	NA	NA	5	5
Cargo Handling Equipment Various*	Various**				
	Ports America	14			14
	Balterm	13	15		28
	WWL	4			4
	ASR Group	8			8

* Equipment types include forklifts, empty handlers, yard tractors, cranes, front end loaders, etc. Twenty (20) units of CHE will be repowered/replaced.

**The CHE program has identified the participants, equipment and project type listed above, but the program allows for additional participation and variation from the equipment and project types listed.

3. Typical Use

All the equipment moves cargo at the Port of Baltimore facilities.

4. Technology Option Selection

Switcher Locomotives – The Switcher Locomotives are very expensive to replace or repower. The auto start/stop option is an excellent way to reduce emissions, save fuel and reduce noise pollution all with one technology at an affordable price.

Cargo Handling Equipment – There is no interest for installing retrofit devices on the CHE involved in this project. There very well may not even be retrofit options that would work for the nonroad equipment, which often has duty cycle and line of sight constraints. These limitations and lack of interest by equipment owners led to the inclusion of two options: replacement or repower. The CHE accounting for the largest percentages of total emissions across all pollutants includes diesel cranes, diesel forklifts, and diesel terminal tractors. The majority of the equipment identified by the companies listed above includes those types of equipment. This information comes from the MPA's 2012 CHE Inventory. Such research into emissions and sources demonstrates MPA's commitment to reducing emissions.

5. Technology Description

Switcher Locomotive – Auto start/stop technology such as SmartStart. Shutting an engine down is not difficult but restarting can be the challenge and knowing when it is acceptable to shut the engine off is key. Manually restarting a locomotive engine can be a challenge for the following reasons: some locomotives are 30 to 40 years old; the operator is dealing with a variety of different engines; horsepower ranges from 1000 to 3000+; differences in starting systems; and unknown condition of batteries. A system such as SmartStart can determine if the locomotive should or could be shut down; protect the locomotive while it was shut down; and reliably restart the engine.

Cargo Handling Equipment – Both repowers and replacements would be upgrading equipment to meet EPA's most stringent Tier 4 standards.

6. Equipment Ownership

Any new equipment or technology will be owned by the same entities that owned the equipment that was retrofitted, replaced, or repowered. Documentation will be provided to demonstrate proper scrappage of the old engines/equipment as specified in the final grant agreement.

7. Attrition

Switcher Locomotive – It is the policy of Canton Railroad not to purchase new equipment. Rather, its equipment is generally remanufactured on an as needed basis ranging from 5-10 years for addressing all power assemblies.

Cargo Handling Equipment – The CHE identified in Table 1 above is not slated to replaced or repowered in the next three years. This equipment would otherwise continue to be fixed when needed and in regular use. Each equipment owner will be required to certify that their equipment would not have been replaced or repowered within the next three years.

8. Scrappage Documentation

Proper documentation includes photos and or videos clearly showing the equipment or engine was operational before scrappage and that the engine (repower) or engine and chassis (replacement) were properly disabled. Properly disabling the engine includes drilling a three inch hole into the engine block and manifold or ripping by mechanical means and

cutting the chassis in half. The scrap yard will be required to submit on their own letterhead the following: name of the scrap yard, address, phone number, contact person, vehicle or equipment VIN/Serial number, a description of the destruction method and a copy of the amount paid, if any, for the scrapped vehicle or equipment. In addition the program would provide EPA with a signed scrappage certification document if deemed necessary in the final grant award. To assure the integrity of the scrap process MES would perform random scrap audits in person to document scrappage. All scrap yards would be eligible to participate but would be required to first speak with program staff to review proper scrappage procedures.

9. Locomotive/Marine Exemption

This is an idle reduction project and not a replacement/repower project. However the locomotive engines included in this Proposal are not required to meet the EPA's locomotive and marine rule, "Control of Emissions of Air Pollution from Locomotives and Marine Compression-Ignition Engines Less than 30 liters per Cylinder." The rule applies only to those locomotive engines meeting any of the following criteria:

- Built in or after 1973; or
- Remanufactured, refurbished, upgraded, or otherwise made "new;" or
- Owned or operated by a Class I or II Railroad.

The Canton Railroad Company is a Class III railroad and not a Class I or II railroad. Canton Railroad is classified as a small business as defined by the Small Business Administration's regulations in 13 CFR part 121. Further, Canton is not owned or operated by a Class I Railroad, but rather is owned by the Maryland Transportation Authority, an independent agency responsible for managing, operating, and improving the State of Maryland's toll facilities.

B. ROLES AND RESPONSIBILITIES

***MES*:** MES is applying for the grant on behalf of the MPA and will be the administrative entity for the program. It will oversee technical contractors and coordinate activities with equipment owners. Specific duties include: assuring all grant commitments are fulfilled; establishing subaward agreements with equipment owners; preparing and submitting grant reports; assuring scrappage takes place and is properly documented; assisting equipment owners with selection and installation of equipment; and providing timely and accurate information regarding the grant to individual projects and overall community impacts to the MPA.

Equipment Owners: Responsible for selecting and purchasing the replacement equipment or repower technology. Specific duties include: analyzing equipment duty cycle to select the best equipment fit with technical assistance (especially for repowers); assuring that the equipment is ordered, installed and/or put into service; complying with the scrappage requirements; adhering to the federal procurement guidelines as applicable; and maintaining open communications with program managers during the project period.

MPA: This project is being submitted on behalf of the MPA by the MES. MPA will participate in coordination calls; promote awareness of the issues that the projects are designed to address and report outputs and outcomes of the projects; and will facilitate interactions with key stakeholder groups such as the Maryland Environmental Health Network, Environmental Defense Fund, Blue Water Baltimore, Baltimore Port Alliance, and representatives of the faith based, environmental and residential communities.

Other Port of Baltimore Stakeholders: See Section 5, page 8 for groups. Roles for these groups include: providing direct feedback on grant activities, providing forums for discussion of diesel emission impacts and options for mitigation and meaningful input into next steps for addressing concerns for air emissions; and circulating information about progress.

C. TIMELINE AND MILESTONES

Table 2: Timeline and Milestones

Quarterly progress reports – Months 4, 7, 10, 13, 16, 19, 22

Tasks and Milestones	Month(s) 1-24
Kick off meeting with EPA project manager	Month 1 or 2
Team meeting to review roles, responsibilities and expectations	Months 1-3
Community Linkage: Discuss project with stakeholders; review project goals	Months 1-3
Locomotive: Review and make final selection of technology options, draft and issue bid requests Cargo Handling Equipment: Draft program materials	Months 1-3
Team meeting to review program progress, review successes, address challenges	**Month 4**

Community Linkage: Discuss project status, receive input from stakeholders	Months 4-6
Locomotive: Select vendor and issue purchase order	Months 4-6
Cargo Handling Equipment: Launch program website and program	
Team meeting to review program progress, review successes, address challenges	Month 7
Cargo Handling Equipment: Recruit applicants, issue program certificates, review new equipment purchase requests, review old equipment scrappage, issue certificate funds	Months 7-9
Team meeting to review program progress, review successes, address challenges	Month 10
Community Linkage: Discuss progress with stakeholders; discuss technology selections	Months 10-12
Locomotive: Begin install of auto start/stop technology	Months 10-12
Cargo Handling Equipment: Continue to recruit applicants, issue program certificates, review new equipment purchase requests, review old equipment scrappage, issue certificate funds	
Team meeting to review program progress, review successes, address challenges	Month 13
Progress meeting with EPA project manager	Month 13
Locomotive: Finish install of auto start/stop technology	Months 13-15
Cargo Handling Equipment: Continue to recruit applicants, issue program certificates, review new equipment purchase requests, review old equipment scrappage, issue certificate funds	
Team meeting to review program progress, review successes, address challenges	Month 16
Community Linkage: Update stakeholders of project progress; review milestones and discuss, anticipated outputs/outcomes and emission reductions	Months 16-18
Cargo Handling Equipment: Continue to recruit applicants, issue program certificates, review new equipment purchase requests, review old equipment scrappage, issue certificate funds	Months 16-18
Team meeting to review program progress, review successes, address challenges	Month 19
Start drafting final report	Month 19
Cargo Handling Equipment: Continue to recruit applicants, issue program certificates, review new equipment purchase requests, review old equipment scrappage, issue certificate funds	Month 21
Complete draft final report	Month 22
Circulate for internal review with EPA project manager	Month 23
Submit Final Project Report Within 90 days of end of project period	

The strategy for the proposed project was developed with fleet partners and other stakeholders who have an excellent track record achieving emissions reduction projects in Baltimore. The proposal timeline was developed in close coordination with fleet partners and is based on experience with similar diesel emission reduction projects such as the Baltimore drayage truck replacement program.

Section 2. Project Location

A) PROJECT LOCATION, B) NONATTAINMENT AREAS AND C) AIR TOXICS ASSESSMENT AREAS
The project location will be the Baltimore Non-Attainment Area, including Baltimore City and the surrounding counties of Anne Arundel, Baltimore, Carroll, Harford, and Howard.

Table 3: Nonattainment Status by County

	Primary Project Location (Balt. City, Anne Arundel, & Baltimore Co.)	Extended Project Location (Carroll, Harford, and Howard Counties)
2008 Ozone	X	X
1997 PM2.5	X	X
NATA PM	X	

Section 3. Project Sector

A. PROJECT SECTOR
The Port of Baltimore is a mix of public and private marine terminals supported by federal, state, and local agencies as well as private port-related businesses. A large volume of international cargo - and a growing number of cruise ship passengers - use the Port of Baltimore and Maryland's associated transportation infrastructure for moving to and from the Baltimore region and beyond. Combining both the public and private marine terminals, the Port of Baltimore saw 32.4 million tons of international cargo cross its docks last year which was valued at approximately $51.1 billion. Baltimore is ranked as the top port among all U.S. ports for handling autos and light trucks, farm and construction machinery, imported gypsum, imported sugar, and imported aluminum. Baltimore is ranked second for exported coal. Baltimore's coal exports were up 10 percent in 2015, which made it the only major coal port in

the U.S. to have an increase in coal exports. Overall Baltimore is ranked ninth for the total dollar value of cargo and thirteenth for cargo tonnage for all U.S. ports. Each year, the Port of Baltimore activities support roughly 13,650 direct jobs and more than 127,000 additional jobs linked to port activities.

B. GOODS MOVEMENT

This proposal addresses emissions associated with the movement of goods through the Port of Baltimore. Switcher locomotives and cargo handling equipment run significant hours to manage the flow of goods into and out of the Port of Baltimore.

Section 4. Benefits to the Community

Diesel emissions including activities associated with the Port of Baltimore affect the Baltimore metropolitan area, which has a population density of 7,671 people per square mile (total population in 2010 was 620,961)[1]. Included in this activity are switcher locomotives and CHE serving the Port's marine terminals. The equipment retrofitted, repowered, or replaced operates in and affects air quality in an areas with a high population density. The most direct impacts would be expected to occur in the communities proximate to marine terminals and there would also be reduced impacts on those living within the entire Baltimore Non-Attainment Area.

Approximately 2 million residents live in communities within the three subdivisions closest to the Port of Baltimore facilities and are exposed to emissions from diesel engines operating in the metropolitan area. Communities in the greater Dundalk area in Baltimore Co. (Turner Station, Carnegie Platt, and St. Helena), the Marley Neck area in Anne Arundel Co. (Brooklyn Park) and the Canton area of Baltimore City, and areas in South Baltimore (Brooklyn and Curtis Bay) will be primary beneficiaries.

Table 4: Poverty, Minority, and Sensitive Populations in Core Project Counties

	Anne Arun. Co.	Balt. Co.	Balt. City
Persons below poverty level, percent, 2008-2012	5.9%	8.5%	23.4%
Minority population	20%	32%	68%
Sensitive populations			
Under 18 and Over 65	5%	37%	33%
Indiv. with Pediatric & Adult Asthma, COPD, CV Disease &/or Diabetes	4%	28%	26%

Sources: Us Census http://quickfacts.census.gov/; American Lung Association State of the Air Report 2014 http://www.stateoftheair.org/2014/states/maryland/

Available data describing air quality for the neighborhood areas surrounding the Port has been generalized instead of subdivided by neighborhood. But even in generalized form, the information is compelling. In 2014 and 2013, there were 4 days when ground level ozone exceeded the EPA health based standard and 20 and 23 days respectively in 2012 and 2011. As the heart of the urban area, many of these communities have high population densities as well as minority populations and significant poverty levels. All will benefit from reduced emissions and improved air quality through reductions in many pollutants, including NOx, PM, HC, CO and CO_2. Asthma is one of the health conditions that accounts for the greatest loss of productivity either through missed work days or school absenteeism.[2] In its 2015 State of the Air report the American Lung Association gave Baltimore an "F" in ozone pollution.[3]

Table 5: Hospitalization Rate for asthma by race, Baltimore City, 2010 per 100,000 population

0-65+	All	Black	White
Total	419.2	555.2	146.2

The projects in this proposal are consistent with other State of Maryland efforts to improve air quality and human health, such the establishment of the MD health exchange and supports efforts to achieve the goals of the City of Baltimore's Sustainability Plan of which the MPA is a partner organization.

Environmental Justice Areas (Communities of Concern): This proposal will improve air quality in two designated Environmental Benefits Districts (EBD), which are areas identified by MDE as deserving special attention for environmental justice related reasons, adjacent to the Port of in Baltimore. The first is the East Baltimore EBD, which comprises zip codes 21205, 21231, and 21224 and consists of over 30 residential and industrial Baltimore

[1] http://quickfacts.census.gov/qfd/states/24/24510.html

[2] Healthy Baltimore 2015 Report, http://health.baltimorecity.gov/sites/default/files/HealthyBaltimore2015_Final_Web.pdf

[3] http://www.stateoftheair.org/2015/states/maryland/baltimore-city.html

neighborhoods. The second is the Southwest Baltimore EBD, which comprises zip codes 21230, 21223, and 21227 and consists of 12 Baltimore neighborhoods.

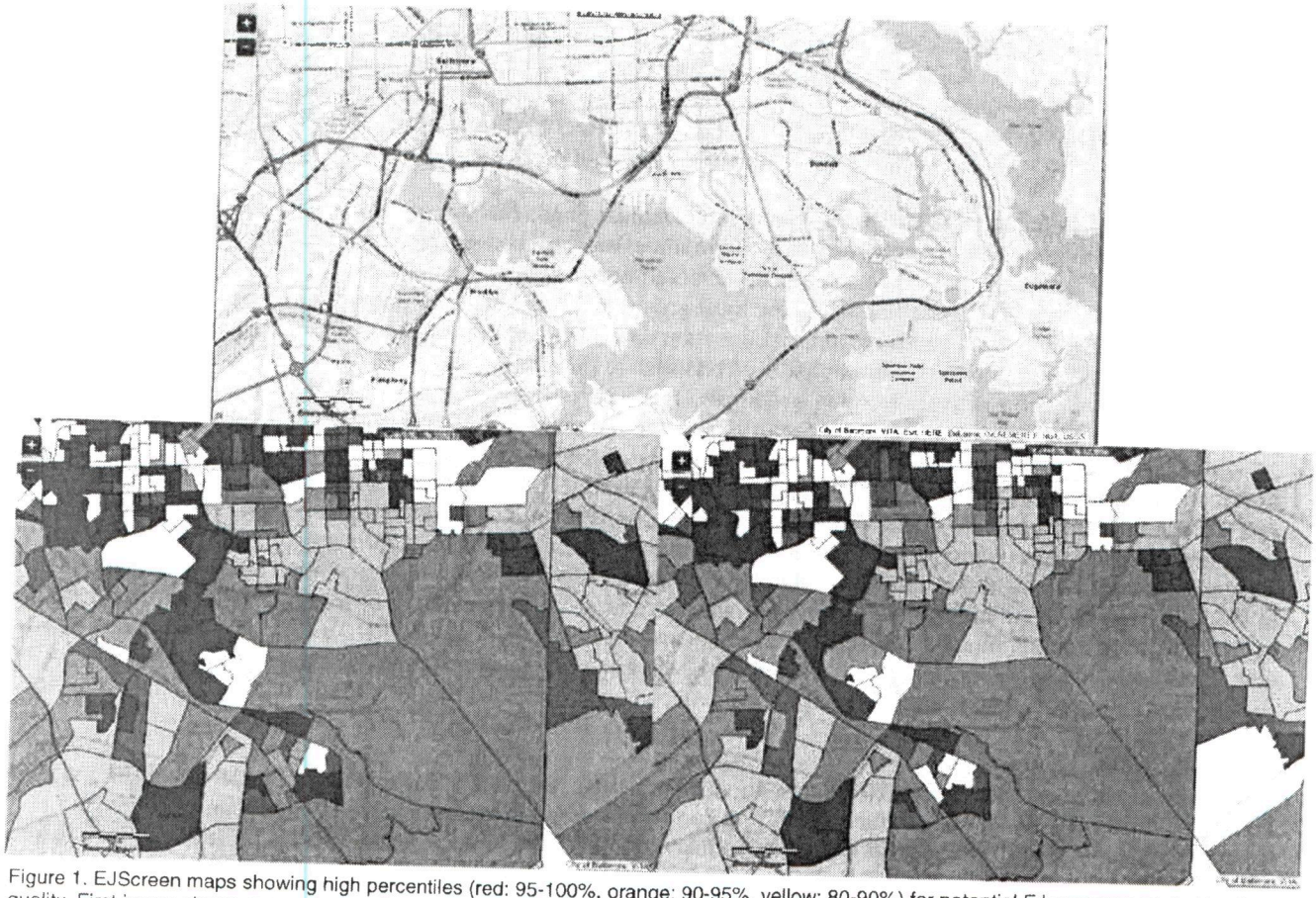

Figure 1. EJScreen maps showing high percentiles (red: 95-100%, orange: 90-95%, yellow: 80-90%) for potential EJ concerns related to air quality. First image shows mapped area. Second image shows PM2.5 environmental justice index. Third image shows ozone environmental justice index. The proposed projects will reduce emissions near communities with potential EJ concerns, such as Canton, Dundalk, and Fairfield.

Direct benefits include health and pollutants emission reductions. Indirect benefits include awareness by equipment owners on community impacts; increased understanding of mobile source emissions and air quality by equipment owners and residents, and increased community support for diesel emission reduction projects.

Community engagement and partnership will occur on a number of fronts. MPA is an active member of the Baltimore Port Alliance (BPA) and its standing committees that focus on environmental issues and education and outreach activities. MPA has strong relationships with its tenants at the publicly-owned marine terminals, as well as with the owners/operators of the many private marine terminals. BPA provides a forum where information that affects the port community can be presented in a constructive environment and acted upon in support of the members and the Port as a whole. BPA initiatives have included: hosting a series of compliance assistance workshops and educational to educate the maritime community on various requirements; developing Port related curriculum for local school systems; organizing and participating in various cleanup activities; and conducting educational tours of the Port of Baltimore.

Working through MPA's existing partnerships with communities and the MD Environmental Health Network, this proposal will engage both of existing partners and community groups using the effective framework developed for the Masonville Dredged Material Containment facility. MPA is optimistic that its community engagements and partnerships will not only ensure the success of this project, but also could identify future projects with community benefits.

Section 5. Community Engagement and Partnerships

Community and stakeholder engagement has been a vital part of MPA's outreach efforts and has involved a variety of efforts. Recently, MPA has begun to expand its outreach to include human health and faith based organizations. For example, in the fall of 2014 MPA reached out to the Maryland Environmental Health Network (MDEHN) to educate communities on port activities, share information about how the port is working to reduce air quality impacts, and receive input on issues of importance to MDEHN members. Engagement efforts include sustained partnerships with local communities through regular meetings, port publications (Port of Baltimore Magazine[4]), and support for community engagement by the executive leadership of the port community.

MPA has been working directly with the Environmental Defense Fund (EDF) over the past two years to help foster conversations about goods movement issues and opportunities and has recently committed resources to participate in the EDF Climate Corps program to host a graduate-level fellow to evaluate shorepower potential at the Port of Baltimore. EDF has suggested reaching out to the local groups and suggested they apply for a capacity-building EPA EJ Small Grant that includes a goods movement education component. EDF is also willing to facilitate/assist with the EJ small grant application process. Current MPA efforts such as the CHE replacement program would be used as an example of how the port is actively working to address legacy diesel fleet emissions, and the CHE replacement program could be used to show how EPA's SmartWay program can help driver/fleets save fuel, dollars and emissions.

In December 2015, the Maryland Department of the Environment (MDE), Maryland Department of Transportation (MDOT) and the MPA entered into a Voluntary Agreement to identify, develop, and implement cost-effective programs to improve air quality and increase energy efficiency. This cooperative, voluntary approach between state regulatory and Port agencies to improve air quality is unique among U.S. Seaports. Completion of the project outlined in this application will aid in fulfilling the goals of the Agreement. Implementation of the project will facilitate building upon the existing cooperative relationships between the agencies and other organizations such as private sector Port entities, citizens, and environmental/public health advocacy groups by demonstrating the agencies collective commitment to improve Maryland's air quality.

Section 6. Project Sustainability

This proposal builds on MPA's participation in previous programs to reduce emissions from diesel engines serving the Port of Baltimore. By developing a framework for a nonroad incentive program, additional funds can be directed towards emission reduction projects as available (so this is not just a one-time project). MPA is actively exploring other ways to help fund a nonroad incentive program, through the active engagement with the Maryland Energy Administration, the Maryland Department of Transportation, and others.

In addition, this program is consistent with MPA's GreenPort program and Environmental Management System (EMS) to improve the quality of the air, water, habitat, waste/recycling and educational/outreach affected by its operations. In 2011, the MPA won recognition for its EMS by receiving ISO 14001-2004 certification, which signals that the MPA has met globally recognized standards for environmental management. Under the air quality component, MPA is using a combination of internal funds, other State of Maryland funds, and federal grant funds to reduce emissions from a variety of port related equipment, such as cranes, top loaders, and drayage trucks, further promoting best practices. For more information on the GreenPort program please see the following website: http://www.mpa.maryland.gov/greenport/index.php.

The project was selected partly based on MPA's ongoing efforts to assess mobile source pollution through emissions inventory projects (2006 Baseline EI, with a 2012 Cargo Handling Equipment update; and marine vessel assessment done by MDE in partnership with MPA). This proposal supports MPA's current efforts to engage with programs that identify and address air quality projects for Baltimore communities, including working with EPA on port sustainability through the EPA MSTRS Ports Workgroup where the Port has senior level management participation via MPA's Executive Director and other senior managers. Further the proposal builds on frameworks that the Masonville dredged material project created for community involvement for water and applies that process to air projects and through new partnership discussions in Spring 2015 with the Maryland Environmental Health Network and Environmental Defense Fund (e.g., possible goods movement proposal to EPA EJ Small Grants by EJ Partnership organization).

[4] Link to the MPAs magazine. http://pobdirectory.com/news/2015/04/27/port-of-baltimore-magazine-marchapril-2015/

MPA works with citizens, community organizations, and uses best practices in science and technology available to meet these commitments. This proposal will promote and continue efforts to reduce emissions after EPA project funding has ended because the estimated remaining useful life of equipment is in excess of 15 years.

Section 7. Environmental Results—Outputs, Outcomes and Performance Measures

A. OUTPUTS AND OUTCOMES:

This project's goal is reduce diesel emissions from up to 25 pieces of diesel-powered equipment. Emission analysis indicates that this program will result in the outcomes shown in Table 6. This Proposal supports EPA's 2014-2018 Strategic Plan Goal 1, Take Action on Climate Change and Improve Air Quality; Objective 1.2, Improve Air Quality, because it will reduce emissions from diesel fleets, thereby reducing local and regional air pollution.

The outputs will be tracked via the quarterly grant reports to EPA. Progress will be monitored on a monthly basis to track progress on tasks in the timeline. The results of the program will be evaluated against the anticipated outputs and outcomes. The pre-award emission calculations will be compared with post-project calculations to determine final environmental effectiveness. The project will use performance measurements, milestones (see timeline for a summary), and ongoing communication to track, measure and report progress towards achieving the expected outputs and outcomes.

Table 6 Anticipated Outputs and Outcomes

<table>
<tr><th>Project Activity</th><th>Outputs</th><th>Outcomes</th></tr>
<tr><td>Locomotives Cargo Handling Equipment</td><td>Retrofit 5 switcher locomotives with auto start/stop technology.

Repower or replace up to 20 pieces of cargo handling equipment</td><td rowspan="2">Short Term:
Retrofitted 5 switcher locomotives.
Increased awareness about diesel emission reduction technologies and projects in Baltimore non-attainment area.
Demonstration by private sector partners to put cleaner equipment into its fleet before normal attrition.
Incorporate project results into MPA clean air planning.
Share with MPO, City agency staff, communities, other stakeholders via printed materials, meetings, and website articles.
Identify future opportunities with stakeholders.
Annual Emission Reductions in tons
<table><tr><th></th><th>PM</th><th>NOx</th><th>HC</th><th>CO</th><th>CO2</th><th>Fuel (Gal)</th></tr><tr><td>Locomotive Switcher Retrofit</td><td>.0547</td><td>1.8281</td><td>.1826</td><td>.3797</td><td></td><td>9,536</td></tr><tr><td>CHE Repower/ Replacement*</td><td>.7205</td><td>10.97</td><td>.2794</td><td>4.242</td><td>1,181.02</td><td></td></tr></table>Medium Term:
Investment in cleaner CHE and idle reduction technologies.
Long Term:
Lifetime Emission Reductions in tons
<table><tr><th></th><th>PM</th><th>NOx</th><th>HC</th><th>CO</th><th>CO2</th><th>Fuel (Gal)</th></tr><tr><td>Locomotive Switcher Retrofit</td><td>.8215</td><td>27.42</td><td>2.739</td><td>5.696</td><td></td><td>143,034</td></tr><tr><td>CHE Repower /Replacement*</td><td>10.80</td><td>164.59</td><td>4.191</td><td>63.63</td><td>17,715.43</td><td></td></tr></table>Contribute to air quality improvements in Baltimore non-attainment area which helps to reduce asthma in children and adults. Increase lung function & decrease cardiopulmonary disease.</td></tr>
<tr><td>Community Engagement</td><td>Outreach to the community through meetings and materials to improve understanding of diesel emissions and related health impacts.</td></tr>
</table>

* The equipment mix and repower/replacement mix is representative and meant to show the range of possibility with the program. Final reductions will be based on the actual equipment replaced or repowered.

Section 8. Programmatic Capability and Past Performance

A. PAST PERFORMANCE:

Table 7 Past Performance*

Assistance Number	Date of Award	Project Title	Grant Amount
XA-97362301-0	June 19, 2008	Maritime Vessels/Cargo Handling Equipment Emissions Reduction Technologies (Assessment) – Port of Baltimore	$125,000
DE-97371001-0	September 11, 2008	Reducing Emissions From Non-Road Equipment, Installation of Diesel Particulate Filters (DPF)	$361,107
2A-97378901-0	July 09, 2009	Implementation of Certified Clean Diesel Technologies at the Port of Baltimore, American Recovery & Reinvestment Grant (ARRA)	$3,500,000

**The MPA has tasked the MES to apply for and implement its recent diesel emission reduction grants. The grants listed above and described below were applied for and administered by MES on behalf of the MPA.*

B. REPORTING REQUIRMENTS

For the maritime vessels (XA-97362301-0) grants, final assessment reports were developed and disseminated to project stakeholders. These reports contain the list of emissions reduction technologies to be considered for implementation at the Port of Baltimore and on dray trucks serving the Port. The grants are closed out. Under the Diesel Particulate Filter Grant (DE-97371001-0), DPFs were installed on 16 units of off-road diesel equipment operating at dredged material containment facilities. For these three grants, staff timely submitted to EPA quarterly progress status reports, semi-annual MBE/WBE reports, and annual SF 272 Cash Transaction Reports. The project was completed successfully, with all project deliverables submitted satisfactorily on time and within budget. For the ARRA cooperative agreement grant (2A-97378901-0), work was completed on 86 engines on 79 pieces of equipment, including 42 units of cargo handling equipment (CHE), 24 dray trucks, 10 locomotives, and 3 harborcraft. The project was completed successfully, with all project deliverables submitted satisfactorily on time and within budget

C. ORGANIZATIONAL EXPERIENCE AND STAFF RESOURCES

The proposed organization to plan, manage, and monitor the implementation of this proposal is described in Section 1. B on page 4 under Responsibilities. The participants include State of Maryland government entities, equipment owners, and consultants. Resumes for key personnel are provided in Appendix B. Many of the project partners have supported implementation of previous EPA diesel emission reduction grants.

MES Staff

Ted Kluga's career includes over 30 years in government and the private sector securing and administering grants. As Grants Administrator for MES, Mr. Kluga secures grant and loan funding for the agency. He works to identify projects that can be funded through federal and state agencies, private foundations, and corporate foundations. Mr. Kluga also worked at the state Maryland Energy Administration, a private consulting engineering firm specializing in energy management and efficiency, and as a self-employed consultant. Responsibilities under this grant include initial review of individual funding requests from dray truckers, completion and submission of periodic and final status and financial reports, ensuring project complies with EPA and OMB regulations, and liaison between MES and EPA and its agents.

Aimee Warner has over ten years experience in environmental compliance, hazardous waste site remediating and investigations, and environmental management system implementation. Ms. Warner is the overall project manager for the Port of Baltimore Clean Diesel Program and served as the head of the Steering Committee under an EPA ARRA Stimulus grant that implemented the program and reviewed all applications. Responsibilities under this grant include budget management, procurement for all technologies and technical review of implemented technologies.

MPA Staff

Barbara McMahon has served as the lead manager for MPA's environmental initiatives and air quality efforts for more than 10 years. She was responsible for the implementation of MPA's Environmental Management System, and ISO 14001 Certification, she continues to lead MPA's environmental team, and has successfully overseen past EPA grant activities. She is active in the environmental committee of the American Association of Port Authorities.

Key Consultant Staff

Susan Stephenson has 20 years' experience working in the air quality, mobile source emission reduction, transportation planning, and public outreach arenas. In her role as the program manager for the Mid-Atlantic Diesel Collaborative and as a Senior Associate with EcoLogix Group, she has reached out via phone calls and personal visits to a varied group of MPA stakeholders for the development and implementation of the Port of Baltimore's Dray Truck Replacement Program.

Dan Spack manages environmental consulting services on a variety of projects for the MPA, as well as services provided to the Maryland Environmental Service in support of activities associated with Maryland's Dredged Material Management Program. He was actively involved with the Port of Baltimore's 2009 EPA Stimulus grant to reduce emissions form port related diesel equipment.

Section 9. Budget Narrative and Detail

The total project cost is estimated at $2,638,400 consisting of $778,400 in federal EPA funds and $1,860,000 in non-federal funds. The cost/share match is comprised of contributions from various equipment owners. MES will award and administer the procurement as needed for certified equipment retrofits, repowers, and replacements.

Expenditure of Awarded Grant Funds: In order to assure that funds are expended in a timely and efficient manner, this project will use the timeline and milestones set forth in Table 2 on pages 4-5. If milestones or task date are not met, the team will develop alternative plans to assure that funds are spent in a timely manner. Deviations from the schedule will be watched carefully and other equipment will be moved into open slots if needed to keep the overall project on schedule.

Table 8 Budget Detail

PERSONNEL	EPA Funding	Mandatory Cost Share	Vol. Cost Share
Salaries			
Division Chief (Tammy Banta) @ $62.54/hr * 3 hrs	$190		
Engineering Section Head (Mike Miller) @ $57.35/hr * 6 hrs	$349		
Senior Engineer (Aimee Warner) @ $49.70/hr * 24 hrs	$1,209		
Grants Administrator (Ted Kluga) @ $43.92/hr * 350 hrs	$15,384		
Management Specialist I (Rachel Harman) @ $21.09/hr * 18 hrs	$385		
Management Specialist II (Kathy Waters) @ $34.63/hr * 9 hrs	$316		
TOTAL WAGES	$17,832		
Fringe Benefits 56.68 % of salaries (Health Insurance, FICA, Retirement)	$10,107		
Indirect Charges			
Federal Negotiated Indirect Cost Rate = 53.76%	$9,587		
TOTAL WAGES/FRINGE BENEFITS/INDIRECT COSTS	**$37,526**		
TRAVEL and OTHER (None anticipated)			
SUPPLIES			
General Project* (Postage)	$500		
TOTAL SUPPLIES			
CONTRACTUAL			
Professional Technical Services**	$71,614		
TOTAL CONTRACTUAL	**$71,614**		
TOTAL ADMINISTRATIVE	**$109,640**		
EQUIPMENT			
5 Locomotive Auto Start/Stop Retrofits	$100,000	$150,000	
Up to 20 CHE Repower/Replacements	$568,760	$1,710,000	
TOTAL EQUIPMENT	**$668,760**	**$1,860,000**	
TOTAL BUDGET	**$778,400**		
			TOTAL PROJECT COST $2,638,400

*General Project — This line item includes costs for items such as posters, flyers, banners, brochures etc. that may be used to reach out to project participants, market the program or as part of any press events, etc. related to the project.

**Professional Technical Services — This line item includes funds set aside to provide for project management and implementation of the retrofit, repower and replacement program, and general assistance to MES on behalf of MPA with management of the project.

Section 10. Applicant Fleet Description

See Appendix A.

Appendix A

Applicant Fleet Description

Applicant Information

Organization/Applicant Name	FirstName	LastName	JobTitle	Address	City	State	EmailAddress	ZipCode	OfficePhone	OfficePhone Ext
Maryland Environmental Service	Ted	Kruge	Grants Administrator	259 Naples Road	Millersville	MD	[illegible]	21108	410-729-8[illegible]	

Project 1 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
CARGO (Clean Air Recognition Grants & Opportunities) - Rail	Maryland Environmental Service	Ports and Airports	5	Baltimore City	Baltimore and Anne Arundel	MD	3	$100,000	Canton Railroad Maryland Energy Administration	$150,000	NO

Fleet 1 Information:

Vehicle Type	Target Fleet	Class/Equipment	Serial and/or VIN # of engine and/or vehicle	Engine Make	Engine Model	Engine Family Name (if unregulated, then NA)	Engine Model Year	Horsepower	Displacement per Cylinder (Liters)	Current Tier Level (Nonroad)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gallons)	Annual Miles per vehicle (Highway)	Annual Usage Rate (hours per engine) (Nonroad)	Annual Idling Hours (per engine)	Year of Vehicle Action	Technology Type	Technology Make	Verified Technology Model	New Engine Family Name (Replacement/Repower)	New Engine Model Year (Replacement/Repower/Upgrades)	New Engine Horsepower (Replacement/Repower)	New Engine Displacement per Cylinder (Liters) (Replacement/Repower)	New Tier Level (Nonroad Replacement/Repower/Upgrades)	New Standard Level for PM and NOx or NMHC+NOx	New Fuel Type	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
							Current Vehicle Information										New Vehicle/Technology Information													
NonRoad	Rail	Locomotives Switch	CTN 1203	EMD	SW1200	NA	1972	1200	EMD 567C, 12C	unregulated		Diesel (LSD), 500 ppm	9,000		1168		2018	Shutdown/Startup for Locomotives												
NonRoad	Rail	Locomotives Switch	CTN 1204	EMD	SW1200	NA	1970	1200	EMD 567C, 12C	unregulated		Diesel (LSD), 500 ppm	10,000		1168		2016	Shutdown/Startup for Locomotives												
NonRoad	Rail	Locomotives Switch	CTN 1501	EMD	SW1501	NA	1976	1500	EMD 645C, 12C	unregulated		Diesel (LSD), 500 ppm	12,000		1168		2016	Shutdown/Startup for Locomotives												
NonRoad	Rail	Locomotives Switch	CTN 1364	EMD	GP7	NA	1970	1800	EMD 567C, 16C	unregulated		Diesel (LSD), 500 ppm	13,000		1168		2016	Shutdown/Startup for Locomotives												
NonRoad	Rail	Locomotives Switch	CTN 1307	EMD	GP7	NA	1970	1800	EMD 567C, 16C	unregulated		Diesel (LSD), 500 ppm	8,000		1168		2015	Shutdown/Startup for Locomotives												

Copy and paste additional rows as necessary to capture project fleet information.
The highlighted model years are actually the following: CTN 1204 - 1956; CTN 1501 - 1956; CTN 1364 - 1952 and CTN 1307 - 1952.
The oldest option in the drop down was 1970.

Project 2 Information

Project Name	Organization Performing Project	Target Fleet	Number of Vehicles	City	County	State	Region	Funding Amount	Additional Funding Source	Additional Funding Amount	Public Benefit
CARGO (Clean Air Recognition Grants & Opportunities) - CHE	Maryland Environmental Service	Ports and Airports	30	Baltimore City	Baltimore and Anne Arundel	MD	3	$568,760	Port tenants various	$1,710,000	NO

Fleet 2 Information:

Vehicle Type	Target Fleet	Class/Equipment	Serial and/or VIN # of engine and/or vehicle	Engine Make	Engine Model	Engine Family Name (if unregulated, then NA)	Engine Model Year	Horsepower	Displacement per Cylinder (Liters)	Current Tier Level (Nonroad)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gallons)	Annual Miles per vehicle (Highway)	Annual Usage Rate (hours per engine) (Nonroad)	Annual Idling Hours (per engine)	Year of Vehicle Action	Technology Type	Technology Make	Verified Technology Model	New Engine Family Name (Replacement/Repower)	New Engine Model Year (Replacement/Repower/Upgrades)	New Engine Horsepower (Replacement/Repower)	New Engine Displacement per Cylinder (Liters) (Replacement/Repower)	New Tier Level (Nonroad Replacement/Repower/Upgrades)	New Standard Level for PM and NOx or NMHC+NOx	New Fuel Type	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost
							Current Vehicle Information										New Vehicle/Technology Information													
NonRoad	Ports and Airports	Forklifts	FL9031	Nissan TD42 4.169L	PD90Y		1996	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1532		500															
NonRoad	Ports and Airports	Forklifts	FL9032	Nissan TD42 4.169L	PD90Y		1996	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1533		500															
NonRoad	Ports and Airports	Forklifts	FL9033	Nissan TD42 4.169L	PD90Y		1996	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1533		500															
NonRoad	Ports and Airports	Forklifts	FL9034	Nissan TD42 4.169L	PD90Y		1996	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1532		500															
NonRoad	Ports and Airports	Forklifts	FL9035	Nissan TD42 4.169L	PD90Y		1996	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1533		500															
NonRoad	Ports and Airports	Forklifts	FL9036	Nissan TD42 4.169L	PD90Y		1996	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1539		500															
NonRoad	Ports and Airports	Forklifts	FL9042	Nissan TD42 4.169L	PD90Y		1999	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1539		500															
NonRoad	Ports and Airports	Forklifts	FL9043	Nissan TD42 4.169L	PD90Y		1999	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1533		500															
NonRoad	Ports and Airports	Forklifts	FL9044	Nissan TD42 4.169L	PD90Y		1999	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1533		500															
NonRoad	Ports and Airports	Forklifts	FL9050	Nissan TD42 4.169L	PD90Y		2000	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1533		500															
NonRoad	Ports and Airports	Forklifts	FL9051	Nissan TD42 4.169L	PD90Y		2000	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1533		500															
NonRoad	Ports and Airports	Forklifts	FL9058	Nissan TD42 4.169L	PD90Y		2001	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1539		500															
NonRoad	Ports and Airports	Forklifts	FL9057	Nissan TD42 4.169L	PD90Y		2001	84.5 HP		Tier 1		Diesel (ULSD), 15 ppm	1522		500															
NonRoad	Ports and Airports	Other Material Handling Equipment	MT126	Cummins 6BT	TEC156H		2000	289 HP		Tier 1		Diesel (ULSD), 15 ppm	1533		500															
NonRoad	Ports and Airports	Forklifts	S-T4-27191	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	4790		1500															
NonRoad	Ports and Airports	Forklifts	S-U-23751	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	4790		1500															
NonRoad	Ports and Airports	Forklifts	S-66-31180	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1600															
NonRoad	Ports and Airports	Forklifts	S-66-31181	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1800															
NonRoad	Ports and Airports	Highway Trac	63767	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1500															

NonRoad	Ports and Airports	Highway Trac	63768	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1500															
NonRoad	Ports and Airports	Highway Trac	64775	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1500															
NonRoad	Ports and Airports	Highway Trac	68442	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1500															
NonRoad	Ports and Airports	Highway Trac	68443	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1500															
NonRoad	Ports and Airports	Highway Trac	66444	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1500															
NonRoad	Ports and Airports	Highway Trac	71092	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	39621		1500															
NonRoad	Ports and Airports	Highway Trac	71080	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5748		1500															
NonRoad	Ports and Airports	Highway Trac	71091	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5748		1500															
NonRoad	Ports and Airports	Forklifts	S-H1-23720	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5748		1800															
NonRoad	Ports and Airports	Forklifts	S-C8-26479	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5748		1800															
NonRoad	Ports and Airports	Forklifts	S-C8-26474	Cummins	QSB			250		Tier 2		(ULSD), 15 ppm	5748		1800															
NonRoad	Ports and Airports	Forklifts	S-C8-26473	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5748		1800															
NonRoad	Ports and Airports	Forklifts	S-C8-26475	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5748		1800															
NonRoad	Ports and Airports	Forklifts	S-C8-26476	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5748		1800															
NonRoad	Ports and Airports	Forklifts	S-C8-26477	Cummins	QSB			250		Tier 3		Diesel (ULSD), 15 ppm	42262		1800															
NonRoad	Ports and Airports	Forklifts	S-C8-26477	Cummins	QSB			250		Tier 3		Diesel (ULSD), 15 ppm	42262		1800															
NonRoad	Ports and Airports	Highway Trac	317908	Caterpillar	6.4Acert			325		Tier 2		Diesel (ULSD), 15 ppm	42262		1600															
NonRoad	Ports and Airports	Highway Trac	317910	Caterpillar	6.4Acert			325		Tier 2		Diesel (ULSD), 15 ppm	42262		1600															
NonRoad	Ports and Airports	Highway Trac	71094	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	42262		1600															
NonRoad	Ports and Airports	Highway Trac	71095	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	42262		1600															
NonRoad	Ports and Airports	Highway Trac	302634	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Highway Trac	302633	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-BB-31182	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-BB-33366	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-BB-33367	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-LI-23752	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-TR-30329	Cummins	QSB			310		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-C8-26478	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-C8-27945	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-C8-27946	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															
NonRoad	Ports and Airports	Forklifts	S-C8-27947	Cummins	QSB			250		Tier 2		Diesel (ULSD), 15 ppm	5110		1600															

Fleet 3 Information:

Current Vehicle Information																	New Vehicle/Technology Information													
Vehicle Type	Target Fleet	Class/ Equipment	Serial and/or VIN # of engine and/or vehicle	Engine Make	Engine Model	Engine Family Name (if unregulated, then N/A)	Engine Model Year	Horsepower	Displacement per Cylinder (Liters)	Current Tier Level (Nonroad)	Current Standard Level for PM and NOx or NMHC+NOx	Fuel Type	Amount of Fuel Used (gallons)	Annual Miles per vehicle (highway)	Annual Usage Rate (Hours per engine) (Nonroad)	Annual Idling Hours (per engine)	Year of Retrofit Action	Technology Type	Technology Maker	Verified Technology Model	New Engine Family Name (Replacement/ Repowers)	New Engine Model Year (Replacements/ Repowers/ Upgrades)	New Engine Horsepower (Replacements/ Repowers)	New Engine Displacement per Cylinder (Liters) (Replacements/ Repowers)	New Tier Level (Nonroad Replacements/ Repowers/ Upgrades)	New Standard Level for PM and NOx or NMHC+NOx	New Fuel Type	Annual Idling Hours Reduced (per engine)	Technology Unit Cost	Technology Unit Installation Cost

Copy and paste additional lines as necessary to capture project fleet information.

Please replicate the Project and Fleet Information Tables as necessary for additional Projects/Fleets.